

Radiation Dispersal Device (RDD)

Dirty Bomb

Radiation Dispersal Device (RDD) Dirty Bomb



Radiation Dispersal Device (RDD)

Dirty Bomb

- Radiation can be dispersed with either a nuclear device (atomic bomb) or a Radiation Dispersal Device (RDD), or “Dirty Bomb”

Radiation Dispersal Device (RDD)

Dirty Bomb

- Dirty Bomb
 - Radioactive materials and an explosive device
 - Nuclear materials are blown up
 - Industrial sources such as radiological equipment
 - Nuclear Medicine materials

Radiation Dispersal Device (RDD) Dirty Bomb

- Limited classic Atomic Bomb effects
 - Limited Fallout
 - Limited blast effects
 - Limited thermal heat/fires
 - Limited destruction

Radiation Dispersal Device (RDD) Dirty Bomb

- Nuclear materials sources



**Uranium Hexafluoride
(UF₆) Overpack**



**Beneficial Uses
Shipping System
(BUSS) CASK
.85 million Curie**

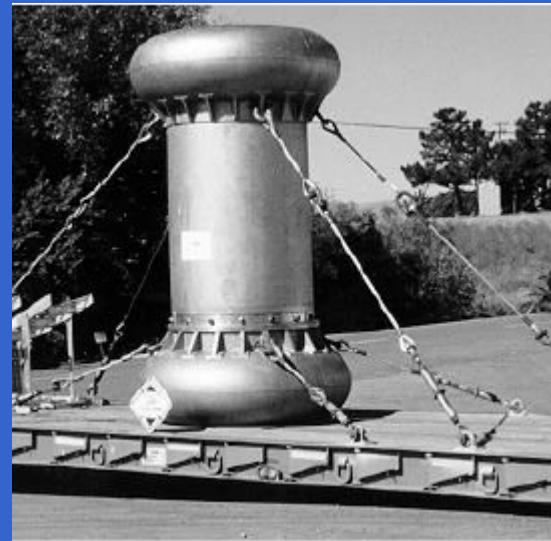
Radiation Dispersal Device (RDD)

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- Nuclear materials sources (continued)



**Radionuclides in solid
waste drums**



Research Reactor Spent Fuel

Radiation Dispersal Device (RDD) Dirty Bomb

- Industrial sources of radioactive materials



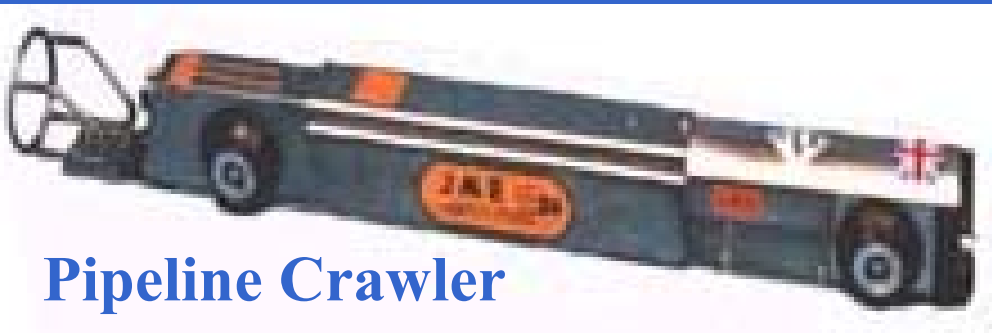
Cobalt 60 Camera
Selenium-75/Iridium-192



Industrial Radiography Source



Winding Mechanism



Pipeline Crawler

Radiation Dispersal Device (RDD) Dirty Bomb

- Nuclear medicine sources



**molybdenum-99
Generator**



**Nuclear Pharmacy Unit
Dose(s) Package**

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- Dozens of potential radioactive sources exist
 - Lantern mantels: Thorium China/India
 - Smoke detectors: Alpha
 - Old military compasses: Radium
 - ebay: WWII US LUMINOUS MARKERS RADIOACTIVE

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- "Orphaned" radioactive sources -- a term utilized by nuclear regulators to denote radioactive sources that are outside official regulatory control -- are a widespread phenomenon in the Newly Independent States (NIS) of the former USSR

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- U.S. companies have lost track of nearly 1,500 radioactive sources within the country since 1996, and more than half were never recovered

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- June 25, the IAEA told the Associated Press that "uncontrolled radioactive sources are widespread" in Central Asia's five former Soviet republics
- More than 100 countries may fail to adequately protect their radioactive materials
- Recent incidents in the former Soviet Union make that region especially troublesome

- The IAEA cited a 1997 episode in which 11 Georgian border guards fell ill with radiation poisoning after cesium capsules in their barracks exposed them to radiation

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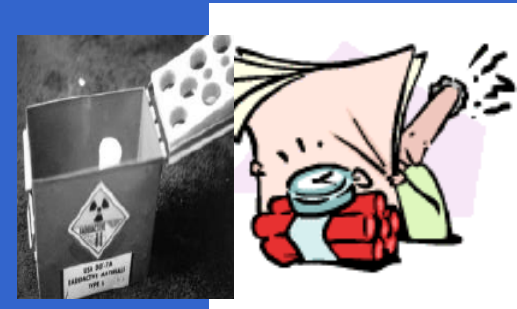
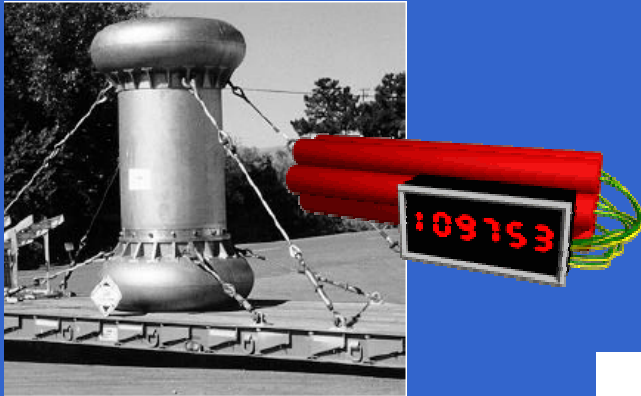
Dirty Bomb

The hunt for missing radiation equipment has spread across the region



Radiation Dispersal Device (RDD) Dirty Bomb

What can they get their Hands on?



Nuclear Medicine
Sources

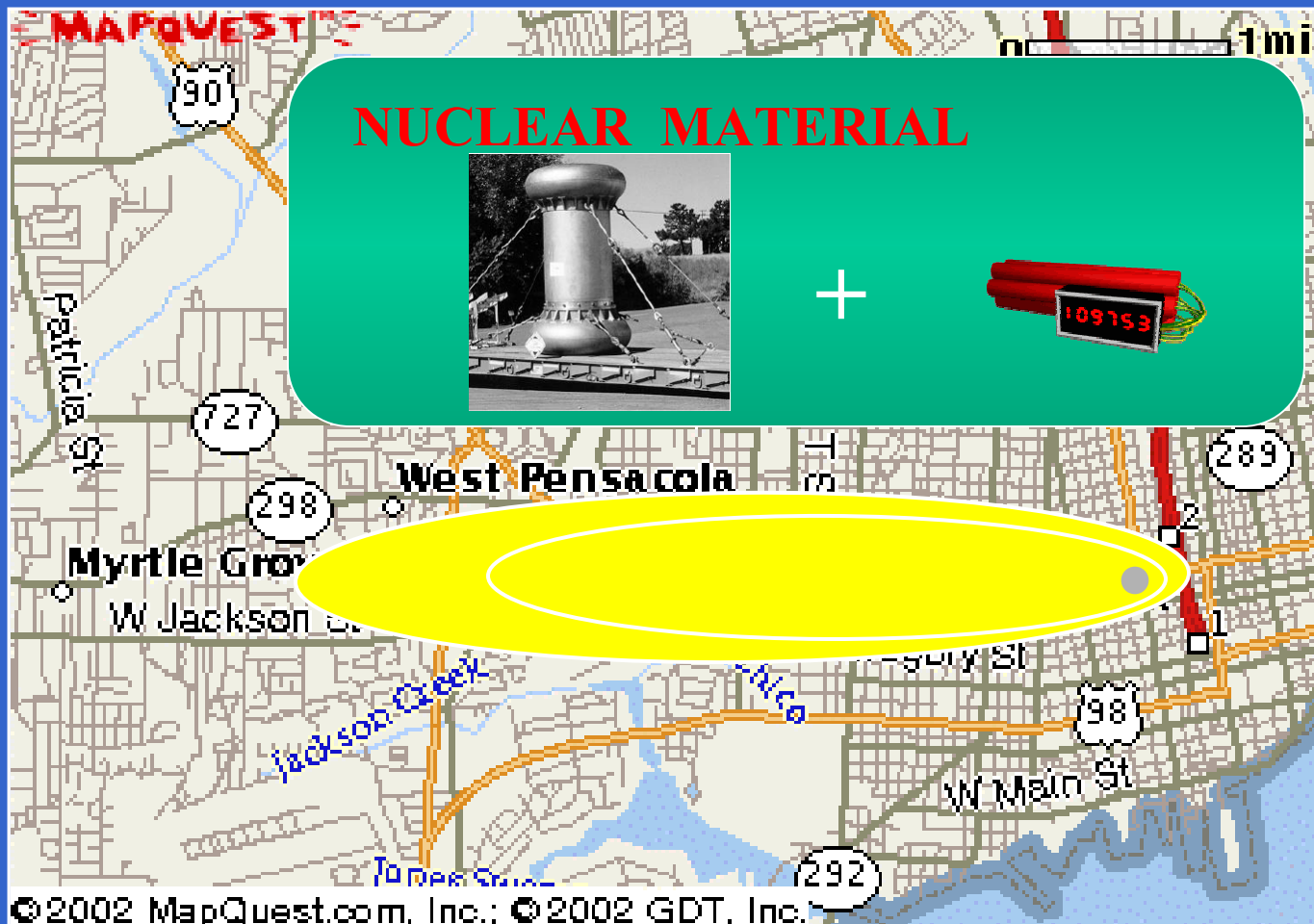


Pipeline Crawler



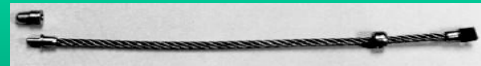
Cobalt 60 Camera

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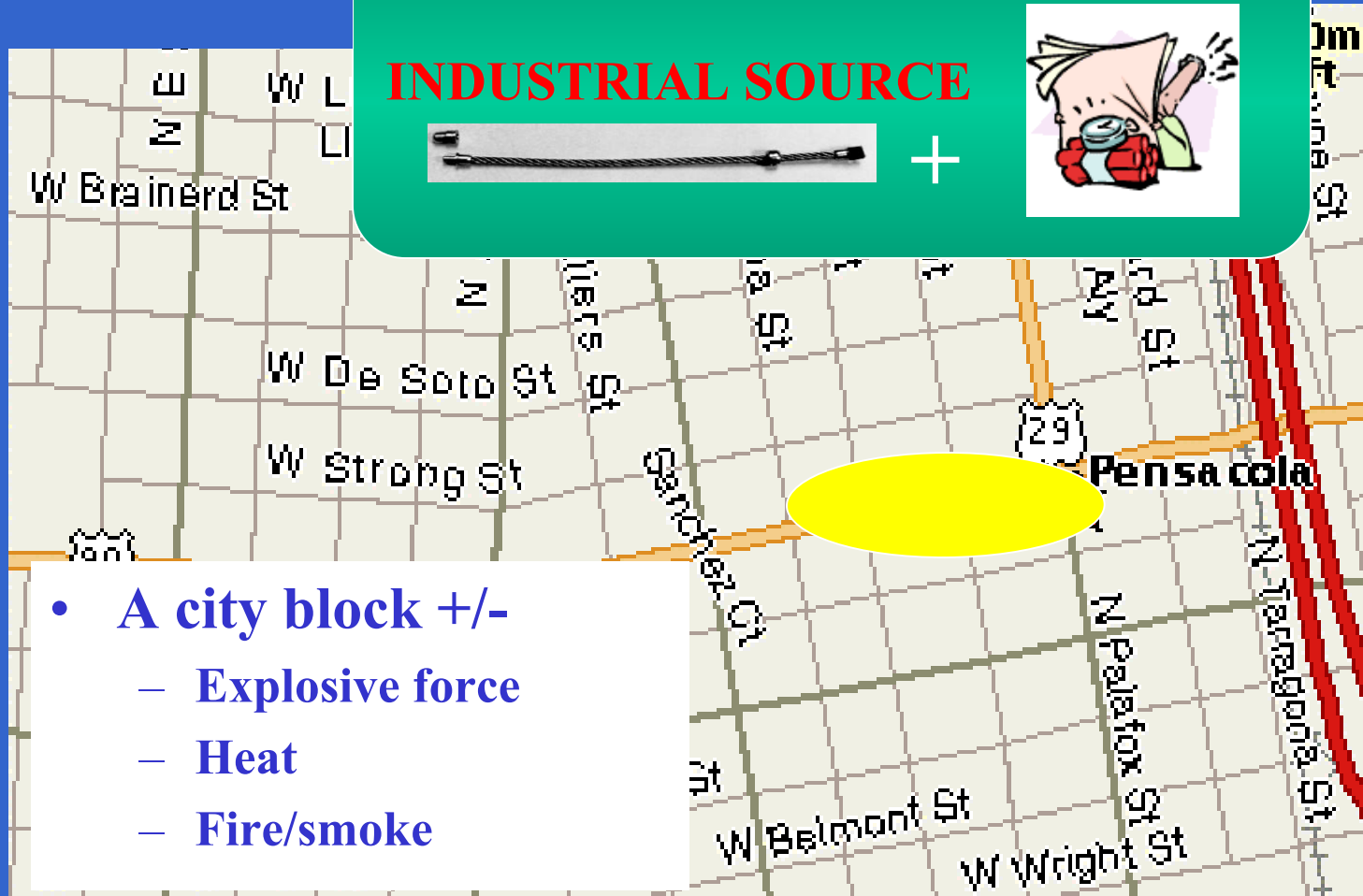
INDUSTRIAL SOURCE



+



- A city block +/-
 - Explosive force
 - Heat
 - Fire/smoke



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